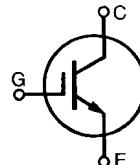


High Voltage IGBT

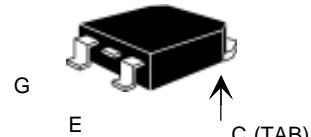
IXGH 24N170 IXGT 24N170

V_{CES} = 1700 V
 I_{C25} = 50 A
 $V_{CE(sat)}$ = 3.3 V
 $t_{fi(ty)}$ = 290 ns

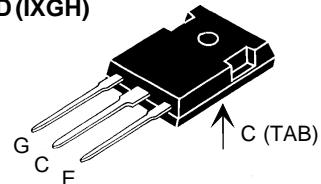


Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C}$ to 150°C	1700	V
V_{CGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GE} = 1 \text{ M}\Omega$	1700	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_c = 25^\circ\text{C}$	50	A
I_{C90}	$T_c = 90^\circ\text{C}$	24	A
I_{CM}	$T_c = 25^\circ\text{C}$, 1 ms	150	A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}$, $T_{VJ} = 125^\circ\text{C}$, $R_G = 5 \Omega$ Clamped inductive load	$I_{CM} = 50$ @ $0.8 V_{CES}$	A
P_c	$T_c = 25^\circ\text{C}$	250	W
T_J		-55 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-55 ... +150	$^\circ\text{C}$
Maximum Lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300	$^\circ\text{C}$
Maximum Tab temperature for soldering SMD devices for 10 s		260	$^\circ\text{C}$
M_d	Mounting torque (M3)	1.13/10Nm/lb.in.	
Weight		TO-247 AD	6 g
		TO-268	4 g

TO-268 (IXGT)



TO-247 AD (IXGH)



G = Gate,
E = Emitter,

Features

- International standard packages
JEDEC TO-268 and
JEDEC TO-247 AD
- High current handling capability
- MOS Gate turn-on
 - drive simplicity
- Rugged NPT structure
- Molding epoxies meet UL 94 V-0
flammability classification

Applications

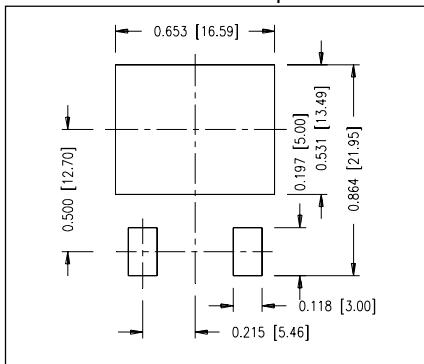
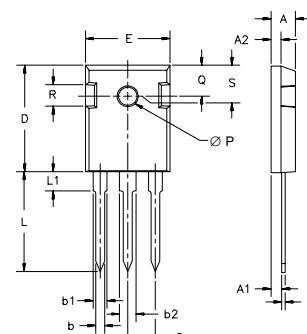
- Capacitor discharge & pulser circuits
- AC motor speed control
- DC servo and robot drives
- DC choppers
- Uninterruptible power supplies (UPS)
- Switched-mode and resonant-mode power supplies

Advantages

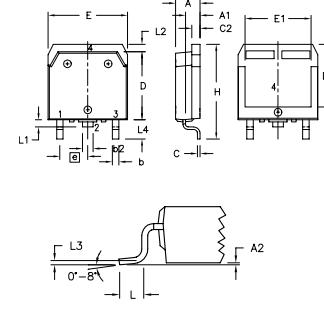
- High power density
- Suitable for surface mounting
- Easy to mount with 1 screw,
(isolated mounting screw hole)

Symbol	Test Conditions	Characteristic Values		
		($T_J = 25^\circ\text{C}$, unless otherwise specified)	min.	typ.
BV_{CES}	$I_c = 250 \mu\text{A}$, $V_{GE} = 0 \text{ V}$	1700		V
$V_{GE(th)}$	$I_c = 250 \mu\text{A}$, $V_{CE} = V_{GE}$	3.0	5.0	V
I_{CES}	$V_{CE} = 0.8 \cdot V_{CES}$ $V_{GE} = 0 \text{ V}$	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$	50 500	μA
I_{GES}	$V_{CE} = 0 \text{ V}$, $V_{GE} = \pm 20 \text{ V}$		± 100	nA
$V_{CE(sat)}$	$I_c = I_{C90}$, $V_{GE} = 15 \text{ V}$	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$	2.5 3.0	V

Symbol	Test Conditions	Characteristic Values		
		min.	typ.	max.
g_{fs}	$I_C = I_{C90}$; $V_{CE} = 10$ V, Pulse test, $t \leq 300$ μ s, duty cycle ≤ 2 %	18	25	S
$I_{C(ON)}$	$V_{GE} = 10$ V, $V_{CE} = 10$ V	100		A
C_{ies} C_{oes} C_{res}	$V_{CE} = 25$ V, $V_{GE} = 0$ V, $f = 1$ MHz	2400 120 33		pF
Q_g Q_{ge} Q_{gc}	$I_C = I_{C90}$, $V_{GE} = 15$ V, $V_{CE} = 0.5 V_{CES}$	106 18 32		nC
$t_{d(on)}$ t_{ri} $t_{d(off)}$ t_{fi} E_{off}	Inductive load, $T_J = 25^\circ C$ $I_C = I_{C25}$, $V_{GE} = 15$ V $V_{CE} = 0.8 V_{CES}$, $R_G = R_{off} = 5 \Omega$ Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 \cdot V_{CES}$, higher T_J or increased R_G	42 39 200 250 8		ns ns 400 ns 500 ns 12 mJ
$t_{d(on)}$ t_{ri} E_{on} $t_{d(off)}$ t_{fi} E_{off}	Inductive load, $T_J = 125^\circ C$ $I_C = I_{C25}$, $V_{GE} = 15$ V $V_{CE} = 0.8 V_{CES}$, $R_G = R_{off} = 5 \Omega$ Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 \cdot V_{CES}$, higher T_J or increased R_G	50 55 2.0 200 360 12		ns ns mJ ns ns mJ
R_{thJC}			0.5	K/W
R_{thCK}	(TO-247)	0.25		K/W

Min Recommended Footprint

TO-247 AD Outline


Dim.	Millimeter Min.	Millimeter Max.	Inches Min.	Inches Max.
A	4.7	5.3	.185	.209
A ₁	2.2	2.54	.087	.102
A ₂	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b ₁	1.65	2.13	.065	.084
b ₂	2.87	3.12	.113	.123
C	.4	.8	.016	.031
D	20.80	21.46	.819	.845
E	15.75	16.26	.610	.640
e	5.20	5.72	0.205	0.225
L	19.81	20.32	.780	.800
L1		4.50		.177
ØP	3.55	3.65	.140	.144
Q	5.89	6.40	0.232	0.252
R	4.32	5.49	.170	.216
S	6.15	BSC	242	BSC

TO-268 Outline


Dim.	Millimeter Min.	Millimeter Max.	Inches Min.	Inches Max.
A	4.9	5.1	.193	.201
A ₁	2.7	2.9	.106	.114
A ₂	.02	.25	.001	.010
b	1.15	1.45	.045	.057
b ₂	1.9	2.1	.75	.83
C	.4	.65	.016	.026
D	13.80	14.00	.543	.551
E	15.85	16.05	.624	.632
E ₁	13.3	13.6	.524	.535
e	5.45	BSC	.215	BSC
H	18.70	19.10	.736	.752
L	2.40	2.70	.094	.106
L1	1.20	1.40	.047	.055
L2	1.00	1.15	.039	.045
L3	0.25	BSC	.010	BSC
L4	3.80	4.10	.150	.161

IXYS reserves the right to change limits, test conditions, and dimensions.

IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents:

4,835,592 4,881,106 5,017,508 5,049,961 5,187,117 5,486,715 6,306,728B1
4,850,072 4,931,844 5,034,796 5,063,307 5,237,481 5,381,025